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13. ABSTRACT (Maximum 200 words)

During the period 7/92 to 6/93 Peter Kruley conducted experiments studying the comprehension of illustrated texts; he took a leading role in designing the experiments, writing and debugging computer programs used in the collection of data, collecting actual subject data, and analyzing the data. In two experiments conducted from June to November 1992, subjects read scientific texts, either with or without illustrations, while simultaneously performing tasks that stressed working memory. The goal of the experiments was to investigate the contribution of spatial and non-spatial working memory to the comprehension of texts; the results showed that performance of a concurrent spatial task was impaired when subjects read illustrated texts, whereas performance of a non-spatial task was not so impaired. Thus evidence was found for on-line use of the visuo-spatial sketchpad (Baddeley, 1986) during comprehension of illustrated texts.

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During the period 7/92 to 6/93 Peter Kruley conducted experiments studying the comprehension of illustrated texts; he took a leading role in designing the experiments, writing and debugging computer programs used in the collection of data, collecting actual subject data, and analyzing the data. In two experiments conducted from June to November 1992, subjects read scientific texts, either with or without illustrations, while simultaneously performing tasks that stressed working memory. The goal of the experiments was to investigate the contribution of spatial and non-spatial working memory to the comprehension of texts; the results showed that performance of a concurrent spatial task was impaired when subjects read illustrated texts, whereas performance of a non-spatial task was not so impaired. Thus, evidence was found for on-line use of the visuo-spatial sketchpad (Baddeley, 1986) during comprehension of illustrated texts. In the spring semester of 1993, Mr. Kruley co-wrote a scientific report of these and other experiments (Kruley, Sciama, & Glenberg, under review). This report was submitted for publication in the refereed journal Memory and Cognition, and was revised by Mr. Kruley and his collaborators in May 1993; the revised version is currently being considered for publication. As far as academic progress is concerned, Mr. Kruley has completed the formal coursework requirements for the Ph.D. degree. In December 1992 he successfully passed his preliminary examination and was certified by the Graduate School as a Ph.D. candidate (dissertator). The Perception, Memory, and Cognition (PMC) area group in the Psychology Department has also certified that Mr. Kruley made satisfactory progress toward his intended degree during each semester he received grant support.

From 7/92 to 6/93 William Langston has designed and conducted a series of experiments investigating noticing (relationships between objects that have not been mentioned in the text) in mental models (the series of experiments headed Experiment 1 in the proposal). From 7/92 to 12/92 the experiments focused on whether or not noticing is a ubiquitous consequence of processing involving mental models. Further, the experiments examined the effect of pictures on the likelihood of noticing. From 1/93 to 6/93 a series of experiments were conducted to investigate the noticing effect in a task that was specifically designed to encourage noticing. For these experiments, subjects were asked to read texts describing a spatial arrangement, and were on the lookout for situations in the text that were odd. Odd was defined (in part) as two objects ending up in a relation that would be impractical or illogical in the real world (e.g. a coffee table on top of an easy chair). The results of these experiments indicate that noticing doesn't take place without the perceptual support provided by a picture. This series of experiments is still in progress, and preparation of a manuscript describing the research is anticipated shortly. In addition, from 2/93 to 6/93 Mr. Langston has been conducting a series of experiments investigating the role pictures play in mapping information onto a spatial dimension in working memory (partially contained under the heading Experiment 2 in the proposal). The hypothesis is that pictures aid in comprehension by indicating how items (ordered in series) ought to be mapped onto a spatial dimension. At this point, the effect of pictures has been investigated using symbolic distance and syllogistic reasoning paradigms. Also, Mr. Langston participated in designing and conducting an experiment investigating individual differences in subject performance over the course of a semester. A report of this research (coauthored by Clark Ohnesorge, Peter Kruley, and Steve Haase) has been submitted for publication to the refereed journal Psychological Science. The PMC area group in the Psychology Department has certified that Mr. Langston made satisfactory progress toward his intended degree during each semester he received grant support.

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